

Application No.: 09/955,223

Docket No.: 30001070-2 US (1509-218)

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-89. (Cancelled)

90. (Currently amended) A method of recording data during successive data recording sessions on a data storage tape of a tape cartridge loaded in a tape drive, the sessions occurring at different times, the method comprising recording data in each recording session by:

~~issuing a reposition command to the tape drive to cause~~ repositioning the tape prior to the start of the data recording session so the tape is repositioned to a start point at the start of a data set to be recorded during the session ~~to start after the tape has been repositioned;~~

after the session has started and during the data recording session, writing ~~[[a]]~~ the data set to the tape;

after the data set has been written to the tape, issuing a ~~further~~ reposition command to the tape drive so the tape is again repositioned at the start of the data set;

creating a code representative of the data in the data set that has been written ~~[[in]]~~ during the recording session between the reposition commands;

after the tape is again repositioned at the start of the data set, writing the code into a memory incorporated within the tape cartridge;

in response to the code being written into the memory, incrementing a code counter indicating a count of the number of codes written into the memory; and

writing the count into a count field of the memory.

BEST AVAILABLE COPY

Application No.: 09/955,223

Docket No.: 30001070-2 US (1509-218)

91. *(Previously presented)* A method according to claim 90, wherein the code includes a signature.

92. *(Currently amended)* A method according to claim 90 91 wherein the ~~code includes~~ signature is coded to include a checksum or a cyclic redundancy check (CRC).

93. *(Previously presented)* A method according to claim 90, wherein the memory includes a cartridge memory that differs from the tape.

94. *(Previously presented)* A method according to claim 90, wherein the memory includes a dedicated area of the tape.

95. *(Previously presented)* A method as claimed in claim 90, further including the steps of:
reading back a data set from the tape;
creating a further code representative of the data in the data set read back from the tape;
comparing the two codes; and
confirming the data set as valid only if the two codes agree.

96. *(Previously presented)* A method according to claim 95, wherein the comparing and confirming steps are carried out by a controlling software application.

97. *(Currently amended)* A method according to claim 95, wherein at least one of the

Application No.: 09/955,223

Docket No.: 30001070-2 US (1509-218)

comparing and confirming steps is carried out by an external reader which is able to at least one of access and display accesses and displays information recorded in the memory.

98. *(Previously presented)* A method according to claim 90, further including the steps of checking whether the number of codes written into the memory has reached a predetermined number and, if so, reporting the tape as read only.

99. *(Cancelled)*

100. *(Previously presented)* A method according to claim 90, further including the step of comparing the codes and number of entries against information held on a secure database.

101. *(Currently amended)* Apparatus for recording data during successive data recording sessions occurring at different times, on a data storage tape of a tape cartridge, the apparatus comprising:

a tape drive to receive the tape cartridge, and a processor having software to control the tape drive to record data in each recording session by performing the steps of claim 90:

— ~~issuing a reposition command to the tape drive to cause the data recording session to start after the tape has been repositioned;~~

— ~~after the session has started, writing a data set to the tape;~~

— ~~after the data set has been written to the tape, issuing a further reposition command to the tape drive for causing the tape to again be repositioned;~~

— ~~creating a code representative of the data in the data set that has been written in the~~

Application No.: 09/955,223Docket No.: 30001070-2 US (1509-218)

~~recording session between the reposition commands;~~

~~— writing the code into a memory incorporated within the tape cartridge;~~

~~incrementing a code counter indicating a count of the number of codes written into the memory;~~

~~and~~

~~— writing the count into a count field of the memory.~~

102. *(Previously presented)* Apparatus according to claim 101, wherein the code includes a signature.

103. *(Currently amended)* Apparatus according to claim 101 wherein the ~~code includes~~ signature is coded to a checksum or a cyclic redundancy check (CRC).

104. *(Previously presented)* Apparatus according to claim 101, wherein the memory includes a cartridge memory.

105. *(Previously presented)* Apparatus according to claim 101, wherein the memory includes a dedicated area of the tape.

106. *(Previously presented)* Apparatus as claimed in claim 101, wherein the processor is arranged to read back a data set from the tape, create a further code representative of the data in the data set read back from the tape, compare the two codes, and confirm the data set as valid only if the two codes agree.

Application No.: 09/955,223Docket No.: 30001070-2 US (1509-218)

107. *(Currently amended)* Apparatus according to claim 106, comprising an external reader ~~which is able to at least one of access and display~~ for accessing and displaying information recorded in the memory.

108. *(Previously presented)* Apparatus according to claim 101, wherein the processor is arranged to check whether the number of codes written into the memory has reached a predetermined number and, if so, to report the tape as read only.

109. *(Cancelled)*

110. *(Currently amended)* Apparatus for recording data during successive data recording sessions occurring at different times, on a data storage tape of a tape cartridge, the apparatus comprising:

a tape drive arranged to receive the tape cartridge;

means for issuing a reposition command to the tape drive;

means for causing to cause the data recording session to start after the tape drive has been repositioned to a start of a data set to be recorded during the session in response to the issued command;

means for writing [[a]] the data set to the tape after the data recording session has started and during the data recording session;

means for issuing a further reposition command to the tape drive for causing the tape to again be repositioned after the data set has been written to the tape;

Application No.: 09/955,223Docket No.: 30001070-2 US (1509-218)

means for creating a code representative of the data in the data set that has been written
[[in]] during the recording session between the reposition commands;

means for writing the code into a memory incorporated within the tape cartridge after the
tape is again repositioned at the start of the data set;

means connected to be responsive to the code being written into the memory for
incrementing a code counter for indicating a count of the number of codes written into the
memory; and

means for writing the count into a count field of the memory.

111. *(Previously presented)* Apparatus according to claim 110, wherein the code includes a
signature.

112. *(Previously presented)* Apparatus according to claim 110, wherein the ~~code includes~~
signature is coded to include a checksum or a cyclic redundancy check (CRC).

113. *(Currently amended)* Apparatus according to claim 110, wherein the memory includes
[[is]] a cartridge memory that differs from the tape.

114. *(Previously presented)* Apparatus according to claim 110, wherein the memory includes a
dedicated area of the tape.

115. *(Previously presented)* Apparatus according to claim 110, further comprising means to
read back a data set from the tape, means to create a further code representative of the data in the

Application No.: 09/955,223Docket No.: 30001070-2 US (1509-218)

data set read back from the tape, means to compare the two codes, and means to confirm the data set as valid only if the two codes agree.

116. *(Currently amended)* Apparatus according to claim 110, further comprising means to access ~~and/or~~ and display information recorded in the memory.

117. *(Previously presented)* Apparatus according to claim 110, further comprising means to check whether the number of codes written into the memory has reached a predetermined number and, if so, to report the tape as read only.

118. *(Cancelled)*

119. *(Currently amended)* Apparatus according to claim 101, wherein the processor software includes an erase command ~~that erases~~ for erasing both the data on the tape and the contents of the memory.

120. *(Previously presented)* The method of claim 90, wherein the method is performed to backup data of a computer to the data storage tape so that the data set written to the tape is the set of data of the computer being backed up and the created code is indicative of the backed up data.

121. *(Previously presented)* The method of claim 90, wherein the memory includes an area for storing several codes corresponding with data sets written to the tape, the method further comprising: writing, into different portions of the area, different codes corresponding with each

Application No.: 09/955,223Docket No.: 30001070-2 US (1509-218)

different data set written into the tape as a result of writing the different data sets into the tape; performing a restoration or validation operation of a data set on a tape of a tape cartridge loaded in the drive; the restoration or validation operation including: (a) causing the tape drive to comply with a request to report the code of a data set required to be restored or validated by reading the requested code from the portion of the memory area where the code for the data set required to be restored or validated is located; (b) positioning the tape to the start of the data set to be restored or validated; (c) then reading the data set to be restored or validated back from the tape; (d) generating a new code corresponding with the data set read during (c), the new code being generated externally of the memory; and (e) after completion of step (c), comparing the new code generated during (d) with the code read during (a) to determine if the data set read during (c) is valid or invalid.

122. *(Previously presented)* The apparatus of claim 110, wherein the memory includes an area for storing several codes corresponding with data sets written to the tape, the drive being arranged for: (A) writing, into different portions of the area, different codes corresponding with each different data set written into the tape as a result of writing the different data sets into the tape; (B) performing a restoration or validation operation of a data set on a tape of a tape cartridge loaded in the drive; the restoration or validation operation including: (a) causing the tape drive to comply with a request to report the code of a data set required to be restored or validated by reading the requested code from the portion of the memory area where the code for the data set required to be restored or validated is located; (b) positioning the tape to the start of the data set to be restored or validated; (c) then reading the data set to be restored or validated back from the tape; a processor arrangement for (i) generating a new code corresponding with

Application No.: 09/955,223Docket No.: 30001070-2 US (1509-218)

the data set read during (c), the new code being generated externally of the memory; and (ii) after completion of step (c), comparing the new code generated during (i) with the code read during (a) to determine if the data set read during (c) is valid or invalid.

123. *(Previously presented)* The apparatus of claim 122, wherein the tape drive includes the processor arrangement for (i) generating the new code.

124. *(New)* The method of claim 91 wherein one of the recording sessions is for backing up data, and performing the following steps during the session:

preventing rewriting of a signature by limiting access to the memory to allow only (a) retrieval of signatures, and (b) creating of a new signature at a previously unused counter location.

125. *(New)* the method claim 124, wherein the signature is written to the next free slot of the memory at the same time that the signature count is incremented in the code counter.

126. *(New)* The method of claim 95, wherein the steps recited in claim 95 are performed in connection with a recording session during which data are restored.

127. *(New)* The apparatus of claim 106, wherein the processor is arranged to perform the steps of claim 106 in connection with a recording session during which data are restored.

128. *(New)* The apparatus of claim 115, wherein the means recited in claim 115 are arranged to be activated in connection with a recording session during which data are restored